REMARKS

The indicated allowability of claims 5 and 8 is gratefully acknowledged. These claims have been placed in independent form as claims 16 and 17 and are believed to be allowable.

In the present amendment, the claims have been amended and new claims have been added in order to more clearly point out important features of the present invention and to correct a typographical error in the specification. It is urged that all of the claims in the present application, as amended, are in condition for allowance, and reconsideration of the application and allowance of the claims are respectfully requested.

There are several features of the present invention that are not disclosed in any of the references of record. First, an important feature of the preferred embodiment of the present invention is that the wind catcher elements comprise open ended C-shaped members oriented substantially horizontally on the cross members, as shown in FIGS. 10-13. In this embodiment, wind flows smoothly over the wind catcher elements from one open end to the other, thereby producing a smooth laminar flow of air across the wind catcher elements. This smooth air flow across the wind catcher elements provides much improved performance of the windmill. It is significant that the C-shaped wind catcher elements are oriented generally horizontally. Air flows in a generally horizontal direction with respect to the vertical drive shaft of the windmill, and a straight wind flow path from one end to the other is most desirable. When air flow is disrupted, as by closed ends on the wind catcher elements, performance is more erratic, especially under wind gust conditions.

Another feature of the preferred invention is that no more than one wind drive unit (one drive unit comprising oppositely facing wind catcher elements mounted on a transverse cross member on opposite sides of the drive shaft) is mounted at a separate vertical position on the vertical drive shaft. When more than one wind drive unit is mounted at the same vertical level or

axial position on the drive shaft, desirable air flow across wind catcher elements can be disrupted by the other elements. This can be significant especially in a windmill wherein C-shaped wind catcher elements extend inwardly close to the drive shaft, where they would be overshadowed by additional wind catchers of the same type at the same level. In all of the horizontal windmills of record in this case, more than two wind catcher elements are mounted at each vertical position along the drive shaft.

A third significant feature of the present invention is that the wind catcher elements on opposite sides of the drive shaft are offset in the manner shown in FIGS. 10-13, with the open ends of the wind catcher elements on opposite sides of the pole in essence facing or being in front of each other. Thus, as wind flows across the front side (the inside or concave side) of one wind catcher element from the outer open end to the inner open end, for example, the wind continues to flow across the pole and then behind the other element (i.e., across the concave inner side of the wind catcher element) on the opposite side of the pole. Thus, wind flows smoothly through the windmill, first exerting a rotating force on the wind catcher element having its open side facing to the wind, and then flowing smoothly adjacent the concave portion of the opposite wind catcher element, wherein the open side faces away from the wind. The wind does not flow in front of the opposite wind catcher element (the convex side facing the wind), where it could impede the rotation of the drive unit.

In the present office action, the claims have been rejected primarily over the Schultz patent. This rejection is respectfully traversed. Schultz, first, discloses four wind catcher elements at the same axial position on the drive shaft. Moreover, Schultz does not disclose wind catcher elements having a C-shaped cross section having substantially straight inner and outer wind engaging sidewalls. Instead, the concave portion of the wind catcher element is provided with a series of wind engaging baffles or webbing members 4, which have a zig zag shape to form a series

of cups or cells 5 (col. 2, lines 39-43). The cups or cells have the effect of disrupting smooth air flow across the inner surfaces of the wind catcher elements. This turbulent air flow is more like the air flow produced by barrels having closed ends and does not produce the same type of smooth longitudinal air flow through the wind catcher elements that the present invention produces.

In the present amendment, claims 1, 2, 9, and 10 have been canceled, and new claims 11-17 have been added, with claims 11-15 covering the features discussed above and claims 16 and 17 incorporating the substance of allowed claims 5 and 8. These claims distinguish the Schultz reference and all of the other references of record in the present case. Specifically, new claim 11 specifies that the longitudinal inner and outer sidewalls of the C-shaped members are substantially straight and produce a smooth air flow therealong, in contrast to the cupped or zig zagged inside contour of Schultz. Dependent claim 12 and independent claim 15 specify that each wind drive unit is positioned at a separate vertical position along the drive shaft. Claims 13 and 14 specify that the air flow across the concave front side of one wind catcher element is thereafter directed across the concave side of the wind catcher element on the opposite side of the crossbar.

The term "C-shaped" is used generally to represent a member having a cross section wherein one side is open and the other side has a closed arcuate contour.

All of the remaining claims of the present application include one or more of these limitations and therefore are believed to be in condition for allowance.

In view of the foregoing amendments and comments, allowance of all of the claims in the present application is respectfully solicited.

Respectfully submitted,

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